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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,861	06/06/2006	Shuzo Ito	273549US0PCT	7197

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EXAMINER	
MCNELIS, KATHLEEN A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/537,861	ITO ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims Status

Claims 1-6 remain for examination wherein claim 1 is amended.

Status of Previous Rejections

The previous rejections under 35 U.S.C. 103(a) are maintained:

- Claims 1 and 6 as unpatentable over Hoffman et al. (U.S. Pat. No. 6,251,156);
- Claims 2-5 as unpatentable over Hoffman et al. (U.S. Pat. No. 6,251,156) as applied to claim 1 and further in view of Hoffman et al. (U.S. Pat. No. 6,648,942);
- Claims 1 and 6 as unpatentable over Hoffman et al. (U.S. PG. Pub. 2001/0054329); and
- Claims 1 and 2 as being unpatentable over Ito et al. (U.S. P.G. Pub. 2001/0027701).

The rejection of Claims 1 and 2 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 7 of U.S. Patent No. 6,630,010 (Ito et al. '010) is maintained.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The specification supports adding sufficient CaO containing material such that the basicity of the slag generated in the melting furnace becomes 1.1 or more (p. 33 lines 1-14). This does not support the amended limitation to claim 1 "...wherein the total amount of CaO-containing material needed to adjust a basicity of a slag generated in the melting furnace is 1.1 or more", which appears to require 1.1 (unknown units) of CaO containing material.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amended limitation to claim 1: "...wherein the total amount of CaO-containing material needed to adjust a basicity of a slag generated in the melting furnace is 1.1 or more" appears to require 1.1 (unknown units) of CaO containing material. If this is the intended interpretation, units must be specified for 1.1 ____of CaO. However the specification (p. 33 lines 1-14) and arguments suggest that a sufficient amount of CaO be added such that the resulting basicity of the slag in the melting furnace is 1.1 or more. Lacking sufficient information (i.e. units of CaO) to examine the first possible interpretation, the latter interpretation has been assumed for examination purposes.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (U.S. Pat. No. 6,251,156).

Hoffman et al. '156 is applied to claims 1 and 6 as set forth in the 3/6/2006 office action.

Regarding the amendment to claim 1, although the limitation of adding not more than 40 kg CaO-containing material per ton of molten iron is not recited, Hoffman et al. '156 teaches that the CaO and MgO additives are tailored to a specific composition that then influences the desulphurization of the bath (col. 4 lines 32-60). The CaO and MgO additions are therefore recognized as result-effective variables in the art, which are varied to affect the desulphurization of the melt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the CaO and MgO as result-effective variables to affect the desulfurization of the melt (see M.P.E.P 2144.05, II, B). The ranges of basicity disclosed in Hoffman et al. '156 overlap the instant claimed range of 1.1 or more as discussed in the 3/6/2006 office action.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (U.S. Pat. No. 6,251,156) as applied to claim 1 and further in view of Hoffman et al. (U.S. Pat. No. 6,648,942).

Hoffman et al. '156 in view of Hoffman et al. '942 is applied to claims 2-5 as set forth in the 3/6/2006 office action.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (U.S. PG. Pub. 2001/0054329).

Hoffman et al. '329 is applied as set forth in the 3/6/2006 office action.

Regarding the amendment to claim 1, although the limitation of adding not more than 40 kg CaO-containing material per ton of molten iron is not recited, Hoffman et al. '329 teaches that the CaO and MgO additives are tailored to a specific composition based on the sulfur content of

the bath (¶ 0035). The CaO and MgO concentrations are therefore recognized as result-effective variables in the art, which are varied to affect the desulphurization of the melt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the CaO and MgO as result-effective variables to affect the desulfurization of the melt (see M.P.E.P 2144.05, II, B). The ranges of basicity disclosed in Hoffman et al. '329 overlap the instant claimed range of 1.1 or more as discussed in the 3/6/2006 office action.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (U.S. P.G. Pub. 2001/0027701).

Ito et al. is applied as set forth in the 3/6/2006 office action.

Regarding the amendments to claim 1, Ito et al. '701 discloses blending with the raw material between 2.0 and 7.0% CaO (¶ 0118), which overlaps the claimed range of not more than 40kg/ton of molten iron (i.e. about 4.4%), therefore a prima facie case of obviousness exists. The ranges of slag basicity disclosed in Ito et al. '701 overlaps the instant claimed range of 1.1 or more as set forth in the 3/6/2006 office action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with

this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 7 of U.S. Patent No. 6,630,010 (Ito et al. '010).

Claims 1-3 and 7 of of U.S. Patent No. 6,630,010 (Ito et al. '010) are applied as set forth in the 3/6/2006 office action.

Regarding the amendments to claim 1, While Ito et al. '010 does not disclose that calcium oxide is fed in an amount of 40 kg or less per ton of molten iron, Ito et al. '010 expresses the basicity as a ratio of CaO to SiO_2, and teaches that CaO is added to achieve a basicity value in the range of between 0.6 and 1.8. The quantity of CaO added is therefore a result effective variable which affects the basicity of the slag. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the quantity of calcium oxide added as result-effective variables to affect the slag basicity (see M.P.E.P 2144.05, II, B). The ranges of slag basicity disclosed in Ito et al. '010 overlaps the instant claimed range of 1.1 or more as set forth in the 3/6/2006 office action.

Response to Arguments

Applicant's arguments filed 9/6/2006 have been fully considered but they are not persuasive.

Applicants' arguments are summarized as follows:

1. US '156 (Hoffman et al. '156), US '942 (Hoffman et al. '942), US pub '329 (Hoffman et al. '329), US pub '701 (Ito et al. '701) or US patent no. 6,630,010 (Ito et al. '010) do

not disclose adding CaO in two portions, one in the raw material and the second in the furnace directly.

2. US '156 (Hoffman et al. '156), US '942 (Hoffman et al. '942), US pub '329 (Hoffman et al. '329), US pub '701 (Ito et al. '701) or US patent no. 6,630,010 (Ito et al. '010) do not disclose that the second amount (i.e. the amount added directly to the furnace) is limited to 40 kg per ton of molten iron.

Examiner's responses are as follows:

1. The instant claims as written do not require adding CaO in two portions, one in the raw material mixture and the second to the melting furnace directly as argued. The claims require that CaO is mixed with the raw material, however the raw material mixture is clearly added to the hearth of the moving hearth reducing furnace (claim 1 lines 3-5) and following reduction to the melting furnace (claim 1 lines 9-10). The claims therefore do not clearly require that CaO be additionally added directly to the melting furnace. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
2. The instant claims do not require limiting the second amount (i.e. the amount added directly to the furnace) to 40 kg per ton of molten iron. Claim 1 requires that "...the CaO-containing material is blended in the raw material mixture; and fed into the melting furnace in an amount of not more than 40 kg per ton of molten iron". Since the blended raw material mixture is first reduced and then fed into the melting furnace, this does not clearly require that in addition to the CaO blended in the raw material mixture, an additional amount of CaO not exceeding 40 kg/ton molten iron is fed directly to the melting furnace.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAM
11/14/2006

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